



# California Regional Water Quality Control Board

## Los Angeles Region



Recipient of the 2001 *Environmental Leadership Award* from Keep California Beautiful

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### UNDERGROUND STORAGE TANK PROGRAM

### STANDARD REQUIREMENTS FOR SITE ASSESSMENT AND CLEANUP

(September 2006)

#### New Case Information

To facilitate our review, we would appreciate that you provide the following information regarding the referenced site that has not already been submitted:

1. Facility contact person's name and phone number (email address, if any);
2. Facility mailing address;
3. Contaminant release information (e.g., copy of Site Assessment Report);
4. Tank removal and/or repair information (include tank size and contents, removal and/or repair date);
5. Tank disposal documentation;
6. Copies of all previous site assessment and/or remediation report(s), if any;
7. Reports of all previous soil and groundwater sample analytical results, if any;
8. Name, telephone number and email address of your environmental consultant, if any; and
9. Copies of all correspondence regarding environmental assessment for the subject site.

#### Property Owner Information Submittal

Pursuant to the California Health and Safety Code Chapter 6.75 (Section 25299.37.2) and Division 7 of the Porter Cologne Water Quality Control Act under AB 681, the Regional Board is required to notify all current fee title holders for the subject site or sites impacted by releases from underground storage tanks prior to considering corrective action and cleanup or case closure. If corrective action data from the site indicate that release(s) from the underground storage tank systems have impacted offsite property, you are required to provide to this Regional Board the name, mailing address, and phone number for any new record fee title holders for the subject site and any offsite property(ies) impacted by releases from the subject site, together with a copy of county record of current ownership (grant trust deed), available from the County Recorder's Office, for each property affected. Or as an alternative, you can complete this Regional Board's "Certification Declaration for Compliance with Fee Title Holder Notification Requirements," for each site (available at

[http://www.waterboards.ca.gov/losangeles/html/programs/ust/AB681\\_form.pdf](http://www.waterboards.ca.gov/losangeles/html/programs/ust/AB681_form.pdf)).

If this information has been provided in the past, then you need not provide it again. Copies of future technical reports shall also be sent directly to the property owner of the site and to any

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other property owner(s) impacted by contamination from the site. You are also responsible to provide new contact information if the property owner(s) has been changed. The new owner shall comply with the requirement stated above.

Please always update the Regional Board with the names, addresses, telephone numbers, and e-mail addresses of the contact persons for the responsible party and its consultant for the site.

### **Quarterly Groundwater Monitoring Report**

Your quarterly groundwater monitoring report must include the following:

- A separate summary table containing current concentrations.
- A summary table containing all historical data per each well with groundwater depth (or elevation) and well screen intervals.
- A regional map depicting site vicinity business and street, etc.
- A site plot plan depicting site location, tank and associated system locations.
- A site map depicting all well locations and groundwater elevations (contour) with flow gradient and direction.
- An isoconcentration map for TPH(g), benzene, MTBE, and TBA, respectively.
- A hydrograph superimposing on concentration over time at the most impacted well for TPH(g), benzene, MTBE, and TBA (or at any other wells as warranted).

All groundwater monitoring reports are to be submitted by the fifteenth day following the end of the quarter as shown in the following schedule:

<u>Reporting Period</u>	<u>Report Due Date</u>
January - March	April 15 <sup>th</sup>
April - June	July 15 <sup>th</sup>
July - September	October 15 <sup>th</sup>
October - December	January 15 <sup>th</sup>

### **Analytical Methods**

Soil and groundwater samples must be analyzed by Cal-LUFT GC/FID or Cal-LUFT GC/MS Method for total petroleum hydrocarbons as gasoline (TPH<sub>G</sub>), total petroleum hydrocarbons as diesel (TPH<sub>D</sub>); and by EPA Method 8260B for BTEX, and fuel oxygenate compounds including methyl tertiary butyl ether (MTBE), di-isopropyl ether (DIPE), ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), and tertiary butyl alcohol (TBA). Ethanol is also required and shall be analyzed by either method above. The analytical detection limits must conform to the Regional Board General Laboratory Testing Requirements (1/05) ([http://www.waterboards.ca.gov/losangeles/html/lab\\_report.html](http://www.waterboards.ca.gov/losangeles/html/lab_report.html)). All respective analytical methods must be certified by the California Environmental Laboratory Accreditation Program (ELAP). All analytical data must be reported by a California-certified laboratory. (ELAP list is available at [www.dhs.ca.gov/ps/ls/elap](http://www.dhs.ca.gov/ps/ls/elap)).

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Prior to consideration of case closure, responsible party must analyze at least one round of groundwater samples including all common aromatic and chlorinated volatile organic compounds per EPA Method 8260B. If the site has a waste oil tank, the full suite of aromatic and chlorinated analytes must also be tested and reported per EPA Method 8260B.

### **Regulatory Requirement for Electronic Submission of Laboratory Data to the State Geotracker Internet Database**

On September 30, 2004, the State Water Resources Control Board (SWRCB) adopted the resolution to revise regulations in Chapter 30, Division 3 of Title 23 of California Code of Regulations (CCR), which requires persons to ensure electronic submission of laboratory analytical data (i.e., soil or water chemical analysis) and locational data (i.e., location and elevation of groundwater monitoring wells), via the Internet to the SWRCB's GeoTracker database. The regulations and other background information are available at <http://geotracker.waterboards.ca.gov>.

In accordance with the above regulations, you are required to submit all future laboratory data over the Internet in the Electronic Deliverable Format to the SWRCB's GeoTracker database for any soil and/or groundwater samples obtained after September 1, 2001. This would include any sampling completed for underground storage tank system removal, site assessment activities, periodic groundwater monitoring, and post cleanup verification sampling. Per the same regulations, you are also required to submit locational data for all groundwater monitoring wells (i.e., latitude, longitude, and elevation survey data) together with groundwater information (i.e., elevation, depth to free product, monitoring well status, etc.) and a site map commencing January 1, 2002. Hard copy paper reports for the main contents are still required per Regional Board guidelines available at

[http://www.waterboards.ca.gov/losangeles/html/programs/ust/04\\_0621\\_e-QMRGuideline6-04.pdf](http://www.waterboards.ca.gov/losangeles/html/programs/ust/04_0621_e-QMRGuideline6-04.pdf).

### **Groundwater Monitoring Well Installation**

1. The construction, development, and abandonment of groundwater monitoring wells must comply with requirements prescribed in the California Well Standards (Bulletin 74-90), published by the California Department of Water Resources (can be seen at [www.dpla2.water.ca.gov](http://www.dpla2.water.ca.gov) and to go "groundwater")."
2. Do not penetrate a competent clay layer below a saturated zone. Conduct physical and hydraulic tests to determine competency of any confining zone materials. Take a sample of the confining materials at the end of borehole for chemical and physical analysis.

3. In the event of installing a deep well, a conduct casing shall be used to prevent contaminants migrating from the shallow aquifer to the deep aquifer.

### **Soil Sampling**

Soil samples shall be collected at a minimum of five-foot intervals, at changes in soil lithology, and at areas of obvious contamination. Continuous coring is required where low-permeability horizons or frequent lithologic changes are encountered and in water-saturated zones. At a minimum, one continuous core must be extended to the water table at a location other than the source area. Soil samples must be logged, and prepared and preserved per EPA Method 5035. Soil samples obtained from the offsite boreholes are used for boring log purposes, and may not be necessarily for analysis. The registered professional in responsible charge shall review the boring logs and assume the responsibility for the accuracy and completeness of the logs.

Provide complete and legible boring logs including:

- Description of earth materials, conditions (moisture, color, etc.), and classifications per Unified Soil Classification System (USCS);
- Lithographic column with USCS abbreviations and symbols;
- Sample depth in feet;
- Penetration in blows per foot (blow counts) and inches (or percent) of sample recovered;
- Vapor readings of samples using OVA.

### **Continuous Coring**

Continuous coring can provide information that may be used to design soil vapor extraction wells and/or groundwater monitoring wells. At a minimum, one continuous core must be extended to the water table at an onsite location other than the known source areas.

### **Groundwater Monitoring**

1. If free product is encountered, product recovery must begin immediately and occur as frequently as possible. Free product must be removed in accordance with the California Code of Regulations (CCRs), Title 23, Chapter 16, Section 2655. Free product removal results, including volume of the product recovered, the legal disposal point, and the hauler's reports or hazardous waste manifest, must be included in your quarterly monitoring report.
2. All groundwater-monitoring wells must be surveyed in to a benchmark of known elevation above mean sea level by a licensed land surveyor or registered civil engineer. Prior to collecting groundwater samples, free product thickness (if present) must be determined and the depth to water must be measured in all wells to be sampled. The wells are to be properly purged until the temperature, conductivity, and pH stabilize, and the water is free of suspended and settleable matter, before samples are collected for analysis. Any wells

containing free product must be purged to remove any standing product, allowed to equilibrate to prepurged levels and free product thickness measured and removed.

3. Technologies of the hydro-punch/geoprobe type are not a replacement for permanent groundwater monitoring wells. Grab groundwater samples from these technologies are not able to provide groundwater-monitoring data over time. Hydro-punch/geoprobes can be used to initially screen analytical groundwater data and strategically identify permanent groundwater monitoring well locations.
4. As the situations of relatively low concentrations warrant, the following parameters must be used to monitoring natural attenuation: pH, dissolved oxygen (DO), redox potential (ORP), sulfate, nitrate, ferrous iron ( $\text{Fe}^{2+}$ ), and methane at all monitoring wells. Conform to the Regional Board General Laboratory Testing Requirements (1/05) ([http://www.waterboards.ca.gov/losangeles/html/lab\\_report.html](http://www.waterboards.ca.gov/losangeles/html/lab_report.html)).

### **Soil Vapor Extraction Well Installation**

The vapor extraction well screen intervals shall be constructed based on the information obtained from the lithology and the vertical distribution of contaminant concentrations in soil samples. The screen intervals shall be installed at the most permeable soil lithological layer (e.g., sand) and at the relatively high contaminant concentration zone.

### **Soil Vapor Extraction Rebound Test**

1. After influent vapor concentrations reach non-detect or asymptotic levels for all gasoline constituents, shut down the system for a period of 2 weeks.
2. Re-start the system and collect influent samples at the following frequencies: 1 day, 7 days, and every two weeks until two consecutive concentrations are at non-detect or asymptotic levels for all gasoline constituents.
3. If concentrations have not reached a non-detect or asymptotic levels, resume system operation for further cleanup.
4. Tedlar bags shall not be used as soil vapor sample containers during rebound testing.
5. Soil matrix samples may be required for confirmation of cleanup in areas where contaminants were previously detected.

### **Soil Vapor Extraction Progress Report**

SVE progress reports shall include the following:

1. Cumulative contaminant ( $\text{TPH}_G$ , benzene, MTBE, and TBA) extraction total to date in pounds of contaminants removed. This information may also be presented in a graphical format,
2. Analytical results of influent and effluent vapor concentrations,
3. System operation details, including periods of shutdown and equipment malfunctions,

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4. Plans and recommendations for additional activities,
5. Results of Rebound Testing conducted during quarter,
6. The following information shall be presented in figures:
  - SVE well concentrations over time for benzene, MTBE, TBA, and TPH<sub>G</sub>;
  - Total system influent concentrations (pre-dilution) over time; and
  - Field OVA-PID readings over time.

### **Laboratory Requirements for Soil Gas Sampling**

Since the California Environmental Laboratory Accreditation Program (ELAP) does not grant certificate for EPA methods for soil vapor sample analysis, additional QA/QC procedures are required (see Regional Board and DTSC "Advisory - Active Soil Gas Investigations" (1/28/2003), available at

[http://www.waterboards.ca.gov/losangeles/html/DTSC\\_RWQCB\\_SoilGasGuidelines.html](http://www.waterboards.ca.gov/losangeles/html/DTSC_RWQCB_SoilGasGuidelines.html)).

### **General Requirements**

1. All work must be performed by or under the direction of a professional geologist, certified engineering geologist, or professional civil engineer. A statement is required in the report that the registered professional in direct responsible charge actually supervised or personally conducted all the work associated with the project. All technical submittals must contain a wet ink signature and seal by one of the registered professionals.
2. Submit a site-specific Health and Safety Plan prior to starting the fieldwork.
3. All necessary permits must be obtained from appropriate agencies prior to starting the fieldwork.
4. All reports submitted to the Regional Board must conform to the "Guidelines for Report Submittals" published by the Los Angeles County Department of Public Works.

Addressee

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Date

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